29.26 inches, was recorded on the 26th, being 0.86 inch below the normal for that date. At Midway Island pressure was below normal during the first week by a daily average of 0.08 inch and above normal thereafter, except on the 19th, by an average of 0.07 inch. At Honolulu pressure was very generally below normal during the first half of the month and above during the last half, the departures as a rule being small.

The month opened with a typhoon forming in the region to the eastward of the Philippines. On the 4th this typhoon passed a few miles to the north of Manila, thence across the China Sea and the Gulf of Tongking, entering Tongking on the 7th.[1]

The opening days of the month also witnessed a northwesterly gale off the California coast of the United States, due to the southeastward movement of the high pressure area noted at Dutch Harbor on the 4th and 5th. Reports of this gale from vessels that were involved are as follows:

British S. S. *Ben Venue*, Capt. C. Marsh, Observer D. McGiep, Portland (June 30) for Panama.

Gale began on the 1st, wind N. by W.; lowest barometer 29.87 inches at 5 a. m. of 2d in latitude 37° 53′ N., longitude 123° 53′ W., wind NNW., 9; end of gale on 2d, wind NNE.; highest force 10, NNW.; shifts, N. to WNW.

American S. S. *Stockton*, Capt. S. Rustad, Observer G. Flyeum, Los Angeles (June 30) for Honolulu.

Moderate gale from NNW. set in at 8 p. m., June 30, hauling to N. by noon of July 1 and continuing for next 20 hours; wind then hauled to NE., force 7–8; a large sea, shifting with the change of wind, was running and vessel shipped the heaviest seas recorded in 10 months' service across the Pacific. Barometer at noon (G. M. T.) on 30th, 29.77 inches, noon of 1st, 29.94 inches. Position on latter date, latitude 32° 47′ N., longitude 124° 40′ W.

American Bark *Moshula*, Capt F. O. Parker, Newcastle (Australia), via Manila, for San Francisco.

July 1, latitude 38° 25′ N., longitude 130° 24′ W., hard gale set in from N. and continued until the 3d; on the 2d reached force 11, NNW., with a heavy sea; on 3d split foresail; position on 3d, latitude 33° 34′ N., longitude 128° 05′ W. Barometer remained high during gale.

The American Army transport *Buford*, Capt. L. R. M. Kerr, Observer Oscar A. Littchen, Honolulu for San Francisco, was involved in this gale from the afternoon of the 1st to the morning of the 3d. The wind reached force 8, from the NW. Postition at noon (G. M. T.) on 2d, latitude 36° 46′ N., longitude 125° 53′ W.

From the 9th to the 11th the U. S. revenue cutter *Bear*, Capt. C. S. Cochran, Observer R. T. McElligott, experienced a southeasterly gale while cruising in Alaskan waters. Following is the report from the *Bear:*

Gale began on the 9th, wind SE.; lowest baromater 29.70 inches at 6 p. m., same date, in latitude 65° 57′ N., longitude 170° 06′ W. end of gale on the 11th; highest force of wind, 9, SE.; shifts, 4 points.

On the 21st and 22d (Asiatic time) the Japanese S. S. *Korea Maru*, Capt. M. Jin, Observer H. Shimmura, Yokohama for Honolulu, had a moderate to fresh easterly gale. This was near latitude 30° N., longitude 177° E.–177° W. Highest force of wind 8, ESE.; lowest barometer 29.87 inches, at 4 p. m. of the 21st, in latitude 30° 20′ N., longitude 179° 20′ E.

On the 14th a second typhoon formed in the region between the Philippine Islands and Ladrone Islands, whence it moved in a northwesterly direction through the Balintang Channel, the China Sea, and the northern part of the Gulf of Tongking.

An unusual amount of fog was reported during the month by vessels on the northern steamship routes.

TWO TYPHOONS OVER THE PHILIPPINES, JULY 4 AND 22, 1921.

By José Coronas, S. J., Chief, Meteorological Division.

[Weather Bureau, Manila, P. I., July 30, 1921.]

Two well-developed typhoons have visited the Philippine Islands during this month of July—one near Manila on July 4, and the other through the Balintang Channel near the Batan and Babuyan Islands on July 22.

Typhoon of July 4.—This typhoon was hardly shown by the observations of Guam and Yap. It is only with very slight probability, based on the winds prevailing at Yap in July 1, that we may suppose that the typhoon was formed on that day between 14° and 15° latitude N. and in about 132° or 133° longitude E. It seems, however, certain that it did not form east of the meridian 135°, but rather to the west of same. In other words this typhoon belongs to the type of those that form nearer to the Philippines than to the Ladrone Islands. As the extent of the typhoon was rather small, its existence could not be noticed in our weather maps until the morning of July 3, when the first warnings were issued by Manila Observatory. The approximate position of the center at 6 a. m. of the 3d was 126° longitude E. and 14° 30′ latitude N.

The center of the typhoon passed a few miles to the north of Manila moving almost due west at 1:45 p. m. of July 4, when the barometric minimum 745.50 mm. (29.35 inches) was recorded. A gale from NW. backing to SW. and S. blew for about six hours (from 11 a. m. to 5 p. m.) doing considerable damage to the city. The highest velocities of the wind recorded in the most violent gusts were 75 miles per hour at 1:28 p. m., and 63 miles per hour at 1:53 p. m. No vortical calm was observed in Manila, but relative calm lasting from 20 minutes to 1 hour was reported from practically all the towns situated from 5 to 25 miles north of Manila. The greatest damage of the storm was done to the Provinces of Rizal, Bulacan, Pampanga, and Bataan. The center traversed Tayabas Province near Polillo and Infanta, the northern part of Rizal Province, the southern part of Bulacan, Pampanga, and Zambales Provinces, and the northern part of Bataan Province. The rate of progress of the typhoon while crossing the Philippines was 8 miles per hour.

In the China Sea, the typhoon increased its rate of progress and inclined northwestward, thus crossing the Paracel Islands in the morning of the 6th, and traversing the Gulf of Tongking and entering Tongking on the 7th.

Typhoon of the "Naugus:" July 22.—We call this the typhoon of *"Naugus"* because this steamer was almost caught in its center in the China Sea, July 23, with a barometric minimum as low as 715 mm. (28.15 inches). The position of the *"Naugus"* at noon of the 22d was 21° 30′ latitude N. and 118° 54′ longitude E., and at noon of the 23d, 18° 59′ latitude N. and 116° 44′ longitude E. The barometric minimum was observed at 8 a. m. of the 23d. The steamer was on her way from Dairen to Batavia; all the superstructure, life boats, and ventilators were damaged, but the hull and the machinery remained intact.

The steamer *"Loong Sang,"* on her way from Hongkong to Manila, felt also the fury of the storm in the China Sea, the barometer having fallen to 735.57 mm. (28.96 inches) at 4 p. m. of the 23d.

[1] See article below regarding typhoons of July, 1921, by Rev. José Coronas, S. J.

This typhoon was formed on the 14th of July between 11° and 12° latitude N., and between 132° and 133° longitude E. It moved first slowly to WNW., then on the 16th it inclined NW. and NNW. between 130° and 127° longitude E., and 12° and 14° latitude N. After having moved almost due north on the 17th and 18th, it remained nearly stationary for over two days between 126° and 125° longitude E., and between 19° and 20° latitude N., at the same time recurving to W. The rate of progress during these two days was only of about 1.5 miles per hour. Finally, on the 21st the typhoon moved W. toward the Balintang Channel, and on the 22d it passed between the Batan and the Babuyan Islands with a rate of progress of about 9 miles per hour. As there is no telegraphic communication with these islands, no news has reached Manila as yet of the great damage supposed to have been done there by the storm. The approximate position of the typhoon was at 6 a. m. of the 22d 20° latitude N. and 121° 30′ longitude E.; and at 6 a. m. of the 23d, 19° 30′ latitude N. and 117° 30′ longitude E.

In the China Sea, it moved for a while even with a little inclination to WSW. The northern part of the Gulf of Tongking was crossed by the typhoon on the 25th; it was moving then WNW.

[Year 1921, ship Loong Sang; Capt. A. F. Simpson; observer, master; month, July; voyage from Hongkong to Manila.]

Day.	Hour.	Port or position.		Barometer.		Wind.		Clouds.		Sea.		Remarks.
		Latitude N.	Longitude (Greenwich) E.	As read off.	Att. ther.	Direction.	Force 0–12.	Forms by symbols.	Moving from.	State by symbols.	Direction from which coming.	
22	5 p. m.			29.51	91	wsw.	1	Cum.-str.		2	E.	Easterly swell.
22	8 p. m.	21° 48′	114° 40′	29.55	88	se.	3	do.		2	E.	Do.
22	12 p. m.	21° 15′	115° 00′	29.52	87	ne.	5	do.		4	E.	Swell increasing.
23	1 a. m.			29.50	83	ne.	7	do.	ne.	4	E.	Do.
23	4 a. m.	20° 40′	115° 15′	29.39	83	n.	7	do.	ne.	5	E.	Typhoon traveling west by Barocyclonometer.
23	5 a. m.			29.36	84	n.	8	Nim.	n.	6	E.	Set in rain showers.
23	7.30 a. m.	20° 00′	115° 30′	29.30	84	n.	9	do.	n.	6	E/N.	Heavy rain and wind squalls.
23	9 a. m.			29.27	84	n/w.	9	do.	n.	7	E/N.	E/N swell and high sea from north.
23	10 a. m.			29.18	83	nnw.	10	do.		8	ENE.	ENE. swell and high sea from north.
23	11 a. m.			29.15	82	nnw.	10	do.		10	ENE.	ENE. swell and high sea from north (typhoon D's. W/S).
23	Noon.	19° 12′	115° 30′	29.10	82	nw/n.	10	do.		10	ENE.	Very heavy rain squalls.
23	2 p. m.			28.98	81	n/w.	11	do.		10	NE. and NW.	Very confused cross seas.
23	4 p. m.	18° 50′	115° 40′	28.96	81	wsw.	11	do.		10	W.	Lost NE. swell. Terrific squalls.
23	6 p. m.			29.05	80	sw.	11	do.		9	SW.	Sea more regular.
23	7 p. m.			29.13	80	sw.	11	do.		8	SW.	Squalls decreasing in force and number.
23	8 p. m.	18° 30′	116° 05′	29.20	80	sw.	11	do.		8	SW.	
23	9 p. m.			29.30	80	sw/w	10	do.		8	SW/W.	Weather improving.
23	10 p. m.			29.40	80	sw/w.	7	do.		7	SW/W.	Do.
24	6 a. m.	17° 30′	117° 10′	29.50	83	ssw.	4	Str.		5	Southerly.	
24	10 a. m.			29.61	84	ssw.	4–5	do.		4	SSW.	

NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

British Isles.—London, July 10.—England is sweltering and suffering in the worst drought in a century.

To-day was the seventy-eighth virtually rainless day. The entire countryside is baked hard. For the third successive day temperatures have exceeded 100. * * * The rainfall for the year is less than one-third normal to date.—*Washington Herald*, July 11, 1921.

London, July 24–30.—The general character of the weather underwent a great change during the week, and before the end rain fell in most districts, more especially in Scotland and Ireland.—*Weekly Weather Report of the Meteorological Office.*

France.—Paris, July 12.—The Senate yesterday adopted a resolution providing for cancellation of the usual July 14 military review in Longchamps, owing to the extreme heat.—*Washington Times*, July 12, 1921.

Paris, July 19.—Reports to-night indicate that abundant rain has fallen over almost all France, and that the hot spell is effectively broken.—*Philadelphia Public Ledger*, July 20, 1921.

Germany.—Berlin, July 27.—* * * The potato crop has been the hardest hit of any in Germany by the prolonged dry weather, and unless heavy rains come within the next few days there is likely to be a shortage of this mainstay of German diet during the coming winter.—*Brooklyn Eagle*, July 27, 1921.

Switzerland.—Zermatt, July 26.—* * * The heat has not greatly abated. On the summit of the Wellenkuppe, above Zermatt, and 12,830 feet high, the temperature at 10 o'clock in the morning has exceeded 100° F., and this despite the summit's being perpetually snow-clad. * * * One climber describes the summit of the Weisshorn as looking like a carpet worked with the most beautiful colors. Never do Alpinists remember such a variety of bright-colored butterflies in the high mountains as this year. * * * Seldom, indeed, have climbers been more exposed to the danger of avalanches, especially snow avalanches, than this season.—*New York Times*, July 27, 1921.

Italy.—Venice, July 30.—The principal phenomenon which prevailed [this week] was the intensely hot weather. An unprecedented heat wave continued to develop in its intensity of heat and in the length of its duration. For several weeks the heat has increased until the past week the temperature has been high up in the nineties for day after day, and unofficial reports of temperatures of over 100° have been frequent. The extremely high humidity has practically brought active business to a standstill, and has caused many deaths and heat exhaustions. * * *

The principal damage caused by the heat wave is the protracted period of drought which accompanies it. Agriculture is the chief sufferer from the heat and drought, and no alleviation appears in sight. Weeks of cloudless, scorching days have played havoc with the crops which were in progress when the heat wave began. The vegetable crop as well as the fruit and early fall crops are showing the effects of the unseasonable heat and drought.—*From U. S. Consul at Venice.*

Russia.—Berlin, July 17.—Twenty million persons are on the verge of starvation in drought-stricken sections of Russia, subsisting mainly on moss, grass, and the bark of trees, according to the *Vossische Zeitung*, which quotes information from "reliable Russian sources." * * *

The parched earth, it is asserted, is opening up great crevices, and wells and rivers are drying up. Foliage is asserted to have withered on the trees, and a number of villages are reported on fire.—*Worcester Telegraph*, July 18, 1921.

Philippine Islands.—Manila, July 5.—A typhoon today caused heavy damage in Manila and its environs.[1]

The city's power supply was cut off, and the city was in darkness. Houses were unroofed and several small vessels in Manila Bay driven ashore. Street-car service was paralyzed.—*New York Tribune*, July 5, 1921.

[1] See report by Coronas, this REVIEW, p. 417.